

Abstract

Described is a device for machine tools or measuring apparatus for detecting the spatial position of a carriage movable in a coordinate axis along a guide with respect to a reference standard which is designed as a rectangular plate extending parallel to the guide of the carriage. Two opposed, parallel surfaces of the reference standard carry each a two-dimensional line grating. A position measuring system serves the function of determining continuously the spatial position of a support member fixedly connectible with the carriage. The position measuring system includes three optical incremental reading heads and one distance sensor. The support member is arranged on the movable carriage such as to prevent the support member from contacting the reference standard over the entire length of the travel while at the same time detection is being performed. Owing to the arrangement of the three reading heads and the distance sensor at accurately defined positions on the support member it is possible to determine the location and the spatial position of the support member and hence of the carriage connected therewith.